The effect of youth employment quotas on the job finding rates of young people in Wallonia

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1. Introduction and aim of the paper

1.1. The First Job Agreement (FJA) program

- Launched in April 2000.
- Aim : to help young people to find a job in order to prevent them to get stuck in (long-term) unemployment (UE recommendation).
- Compulsory employment quotas :
  - in private for-profit companies, 3% of the labour force must be composed of young people occupied under a FJA.
  - for public companies, the quota is reduced to 1.5%.
  - there is an additional 'collective' quota of 1% for private for-profit companies.
- A FJA may be an open-ended or a fixed-term contract, BUT it may last at most one year.
- Target of the FJA :
  - all young job seekers under 30 years old, BUT with priority to (1) job seekers recently leaving school and (2) job seekers under 25 years old.

    Note : in Wallonia, only job seekers under 25 years old turned out to be eligible.
- Financial incentives for employers :
  - to hire unskilled job seekers.
  - to keep young people at the end of their FJA.

1.2. Some facts about the FJA program

- During the period April 2000 - December 2001, about 70 000 young people have been hired under a FJA. This represented ± 35 000 jobs in steady state in 2001, i.e. ± 4.6% of the salaried employees under 30 years old (± 1.2% of the total salaried employees).

- The FJA jobs were in majority (± 68%) occupied by young flemish people (which accounted for ± 30% of young unemployed people).

- The FJA jobs were in majority (± 67%) occupied by mid-skilled or skilled young people (which accounted for ± 46% of young unemployed people).

- About 34% of young people hired under a FJA directly came from a previous regular job.

- According to some limited evidence, up to 85% - 90% of young people hired under a FJA would remain at work after their FJA.

→ Question : are FJA jobs really genuine new additional jobs ?

1.3. Aim of the paper

- To evaluate whether or not the FJA program has really improved the youth insertion in the labour market, compared to what would have prevailed in the absence of the program.

2. Methodology

- To evaluate the FJA program, we need to compare :
  - the unemployment exit rates of (different categories) of unemployed job seekers (UJS) when the measure is installed
  - to the ones that would have prevailed in the abscence of the FJA program.

- Basic idea : **if the labour market conditions and the characteristics of the job seekers were the same,**

  the exit rates which would have prevailed in the absence of the FJA
  =
  the exit rates prevailing before the start of the program.

- We can sensibly fullfil this **ceteris paribus condition** by reasoning :
  - on the basis of individual data,
  - conditionally to the labour market conditions and the characteristics of the UJS.
  - and by further evaluating the effect of the FJA by difference in differences (rather than by a simple difference).

- Practical implementation :

  a- Estimation, based discrete conditional hazard functions, of job seekers exit rates according to the labour market conditions and their individual characteristics,
  - ∗ *before* and *after* the setting up of the FJA program,
  - ∗ for the *target group* and for a *control group.*

  b- Deduction of the individual effects of the FJA program by difference in differences.

  c- Deduction of the aggregate effects for different sub-populations of job seekers, and of the total effect for the entire (treated) target group.

3. Data, model specification and estimation

3.1. Data

- Sample : all individual less than 30 years old who became job seeker during the third quarter of the years 1998 and 2000. People more than 25 years old constitutes the control group.

- Available data for each individual :
  - career path, from the month of the selection in the sample to october of the following year.
  - characteristics of the individual (age, sex, qualification, sub-region).

- Labour market conditions data : unemployment rates by age, sex, qualification and sub-region.

Some descriptive statistics by cohort

		Cohort 1998	Cohort 2000
Nbr. of individuals		53 584	50 043
Entry date	july	39.9%	39.9%
	august	29.1%	28.9%
	september	31.0%	31.2%
Unemployment status	standard	45.0%	46.1%
	school leaver	55.0%	53.9%
Age	18 - 22	41.5%	44.2%
	22 - 25	35.8%	33.8%
	25 - 30	22.7%	22.0%
Sex	man	46.7%	46.3%
	woman	53.3%	53.7%
Qualification	unskilled	28.1%	28.9%
	mid-skilled	38.3%	39.4%
	skilled	33.6%	31.7%
Mean unemployment rate		27.4%	24.2%

3.2. Model specification and estimation

- The exit rates from unemployment of the job seekers according to their individual characteristics and the labour market conditions are estimated using discrete conditional hazard functions :

$$\lambda(t, X^{it}) = I\!P\left[T_i = t | T_i \geq t, X^{it}\right], \ \forall\, t = 0, 1, 2, ...$$

To such hazard functions are associated discrete conditional density and survival functions respectively given by :

$$\begin{aligned} f(t, X^{it}) &= I\!P\left[T_i = t | X^{it}\right], \ \forall\, t = 0, 1, 2, ... \\ &= \begin{cases} \lambda(0, X^{i0}) & , \text{if } t = 0 \\ \lambda(t, X^{it}) \prod_{t^*=0}^{t-1} \left(1 - \lambda(t^*, X^{it^*})\right) & , \forall\, t = 1, 2, ... \end{cases} \end{aligned}$$

and

$$\begin{aligned} S(t, X^{it}) &= I\!P\left[T_i \geq t | X^{it}\right], \ \forall\, t = 0, 1, 2, ... \\ &\begin{cases} 1 & , \text{si } t = 0 \\ \prod_{t^*=0}^{t-1} \left(1 - \lambda(t^*, X^{it^*})\right) & , \forall\, t = 1, 2, ... \end{cases} \end{aligned}$$

Note that by definition :

$$\lambda(t, X^{it}) = \frac{f(t, X^{it})}{S(t, X^{it})}, \ \forall\, t = 0, 1, 2, ...$$

- Separate hazard functions were estimated for 6 sub-populations defined according to sex (man and woman) and qualification (unskilled, mid-skilled and skilled) of the UJS.

- All estimation were made by maximum likelihood with censored durations, which are also partly observed by intervals.

- Functional form of the hazard functions estimated by sub-population :

$$\lambda(t, X^{it}; \beta_j) = \frac{e^{X_{it}^{*\prime}\beta_j}}{1 + e^{X_{it}^{*\prime}\beta_j}} \qquad j = 1, ..., 6$$

where β_j is a parameter vector specific to the sub-population j et $X_{it}^{*\prime}\beta_j$ is specified as the following polynomial form :

$$\begin{aligned} X_{it}^{*\prime}\beta_j \;=\; & \beta_j^0 + \beta_j^1 Djan + \beta_j^2 Dfeb + \beta_j^3 Dmar + \beta_j^4 Dapr + \beta_j^5 Dmay \\ & + \beta_j^6 Djun + \beta_j^7 Djul + \beta_j^8 Daug + \beta_j^9 Dsep + \beta_j^{10} Doct + \beta_j^{11} Dnov \\ & + \beta_j^{12} t + \beta_j^{13} t^2 + \beta_j^{14} t^3 + \beta_j^{15} t^4 \\ & + \beta_j^{16}(t \times Age_i) + \beta_j^{17}(t^2 \times Age_i) + \beta_j^{18}(t^3 \times Age_i) + \beta_j^{19}(t^4 \times Age_i) \\ & + \beta_j^{20} Age_i + \beta_j^{21} Age_i^2 \\ & + \beta_j^{22} Txcho_{it} + \beta_j^{23} Txcho_{it}^2 + \beta_j^{24}(Txcho_{it} \times Age_i) \\ & + \beta_j^{25} D2000 + \beta_j^{26} D2000\_target_i \end{aligned}$$

- Basic elements of the functional form :
  - Dummies for the different months : seasonal aspect.
  - Polynomial in t : flexible form for the "baseline hazard".
  - Polynomial in *Age* : influence of age (vocational experience)
  - Interaction between t and *Age* : variable "baseline hazard" according to age.
  - Polynomial in *Txcho* : influence of economic situation and regional differences.
  - Interaction between *Txcho* and *Age* : difference of sensitivity of economic situation according to age.
  - Dummies for the period of the FJA program and for the target group :
    - *D2000* : 1 if the FJA program is running, 0 otherwise.
    - *D2000_ target* : 1if the FJA program is running **and** the individual is in the target group (= impact of the program by difference in differences), 0 otherwise.

4. Empirical results

4.1. Estimated parameters

- In all sub-populations :
  - significant seasonal effects.
  - "baseline hazard" always decreasing, or increasing and then decreasing (according to age).
  - the unemployment rate plays a significant negative effect on the exit rates.
  - the negative effect of the unemployment rate significantly declines with age (except for mid-skilled men).
  - the variable *D2000* is not significant (except for unskilled women).
- Estimated parameter of the variable *D2000_target* (= impact of the program for the target group in 2000) by sub-population :

Sub-population	Parameter	St. Dev.	95% Conf. Int.	P-value
Unskilled men (17 838 ind.)	0.0647	0.0411	[-0.0159, 0.1217]	0.1153
Unskilled women (11 672 ind.)	-0.0357	0.0545	[-0.1425, 0.0711]	0.5119
Mid-skilled men (19 153 ind.)	0.1303	0.0498	[0.0327, 0.2279]	0.0089
Mid-skilled women (21 064 ind.)	0.1231	0.0428	[0.0392, 0.2123]	0.0040
Skilled men (11 198 ind.)	0.1284	0.0448	[0.0406, 0.2162]	0.0042
Skilled women (22 702 ind.)	0.0573	0.0356	[-0.0125, 0.1271]	0.1081

4.2. Estimated effect of the FJA program on the median unemployment duration of the target group in 2000

Median unemployment durations with and without the FJA

Sub-population	Without FJA (month)	With FJA (month)	Δ%
Unskilled men (6 825 ind.)	6.76	6.20	-8.3 %
Unskilled women (4 148 ind.)	14.78*	15.5*	+4.9 %
Mid-skilled men (7 991 ind.)	6.61	5.61	-15.1 %
Mid-skilled women (8 358 ind.)	14.31*	12.10	-15.4%
Skilled men (3 682 ind.)	3.95	3.33	-15.7%
Skilled women (7 668 ind.)	4.78	4.41	-7.7 %
Total population (38 672 ind.)	7.30	6.69	-8.4 %

*Extrapolation

4.3. Estimated effect of the FJA program on the unemployment exit rates of the target group in 2000

Unemployment exit rates within 6 and 12 months, with and without the FJA

Sub-population	Exit within 6 months			Exit within 12 months		
	Without FJA	With FJA	Δ%	Without FJA	With FJA	Δ%
Unskilled men (6 825 ind.)	47.2	49.2	+4.3	63.6	65.8	+3.4
Unskilled women (4 148 ind.)	29.7	28.9	-2.8	45.3	44.2	-2.4
Mid-skilled men (7 991 ind.)	47.3	51.5	+8.9	65.8	70.2	+6.7
Mid-skilled women (8 358 ind.)	30.2	33.2	+10.0	45.9	49.8	+8.4
Skilled men (3 682 ind.)	59.0	63.2	+7.1	82.1	85.3	+3.8
Skilled women (7 668 ind.)	56.1	58.0	+3.3	78.1	79.7	+2.1
Total population (38 672 ind.)	44.6	47.1	+5.8	62.9	65.6	+4.2

4.4. FJA exits of the target group in 2000: actual additional jobs ?

Part of the FJA exits comparable to actual additional jobs within 12 months

Sub-population	Without FJA	With FJA	Additional exits	FJA exits	% Actual additional jobs
Unskilled men (6 825 ind.)	4 344	4 491	147	664	22.1 %
Unskilled women (4 148 ind.)	1 880	1 835	-45	190	0.0 %
Mid-skilled men (7 991 ind.)	5 260	5 611	351	1172	29.9 %
Mid-skilled women (8 358 ind.)	3 840	4 163	323	639	50.5 %
Skilled men (3 682 ind.)	3 024	3 139	115	666	17.3 %
Skilled women (7 668 ind.)	5 990	6 113	123	890	13.8 %
Total population (38 672 ind.)	24 338	25 353	1 015	4 233	24.0 %